



Digital Culture /  
Smart Cities /  
IoT Lab



## UNESCO Chair in “Creative Cities in Motion”: Urban Sustainable Mobility & Utilization of Cultural Resources

### Digital Transformation and Security Challenges for Smart Sustainable and Creative Cities

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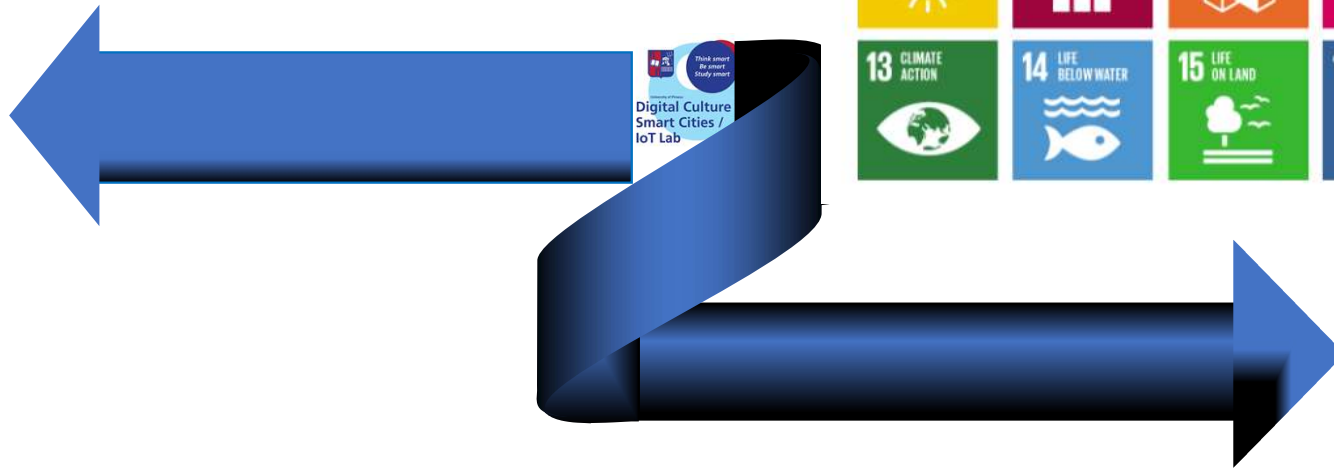
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4 - 6 October 2023, Palais des Nations, Geneva, Switzerland

# UNESCO Chair in “Creative Cities in Motion”: Urban Sustainable Mobility & Utilization of Cultural Resources



Think smart  
Be smart  
Study smart

Digital Culture  
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IoT Lab



The Chair is aligned with **the principles, procedures and functions** of UNESCO Chairs and Networks Programme and the **United Nations Sustainable Development Goals**

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## UNESCO Chair in “Creative Cities in Motion”: Urban Sustainable Mobility & Utilization of Cultural Resources



### Mission



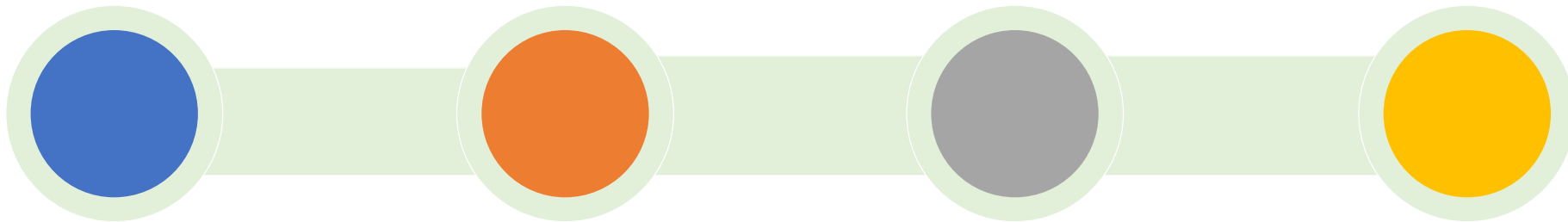
The **mission** of UNESCO Chair in "Creative Cities in Motion: Urban Sustainable Mobility & Utilization of Cultural Resources" is **to foster knowledge, advance research on smart cities** and settlements, sustainable urban mobility, while enhancing cultural heritage and the peri-urban environment, which are **integral elements of the transformation of creative cities and communities in the 21<sup>st</sup> century.**

The **Chair's vision** is to set the basis in Higher Education and Society for a better understanding of today's shift **from digital cities to people-centered smart, secure, sustainable eco-cities** for all ages that will be digitally inclusive, accessible and yet **creative!**

## UNESCO Chair in “Creative Cities in Motion”: Urban Sustainable Mobility & Utilization of Cultural Resources

UNESCO Chair is aligned with **SDG 11** “**Make cities and human settlements inclusive, safe, resilient and sustainable**”.

UNESCO Chair **promotes its goals** through **education, research, training, innovation, awareness initiatives**



UNESCO Chair is in line with the goals of **United for Smart Sustainable Cities (U4SSC) Initiative** coordinated by ITU, UNECE and UN-Habitat.

UNESCO Chair **has a large network of collaborators**

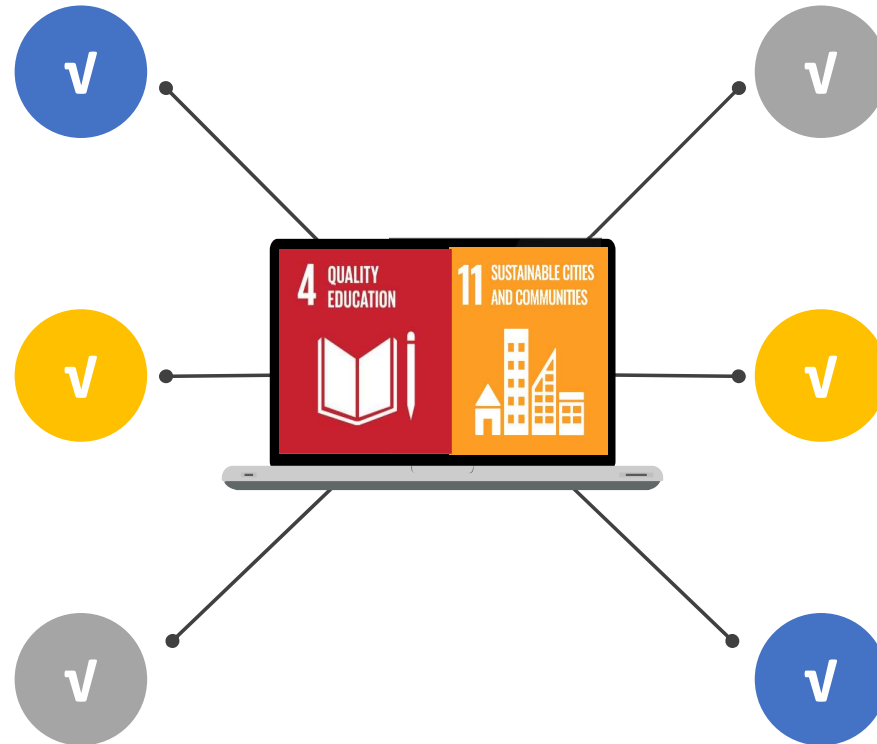
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The Chair focuses its study and research on the dynamic nature of creative, innovative, secure, inclusive, people-centric smart cities

by strengthening the creative industries and advancing digital skills for all

by promoting the development of sustainable urban creative cities, using new technologies and services, reinforcing climate-neutral ecosystems

by collaborating with stakeholders for the development of its actions



by focusing on the security and confidentiality of communications

by raising public awareness for smart/digital cities, resilient and inclusive settlements as well as sustainable urban mobility

by promoting the preservation and enhancement of cultural heritage, of urban environments, and the revitalization of the cultural life of the cities, as well as the protection of the cultural landscape.

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# Digital Transformation



## Smart cities

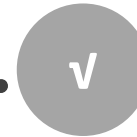
ITU and UNECE developed an internationally agreed definition for a smart, sustainable city

*“A smart, sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, the efficiency of urban operation and services, and competitiveness while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects”.*



## A New era of Smart Cities

What distinguishes smart cities from other cities?



Advanced technologies, data analytics, standards, legislative framework to protect citizens' private data, transparent governance.

What is the objective?



Enhance the **quality of life of citizens**, encourage economic development, sustainability, citizen engagement and protect citizens' rights.

How is this possible?



**Efficient** urban services, by utilizing advanced technology and data analytics on data collected by various sensors, make users feel **secure** with standards which safeguarded their data.

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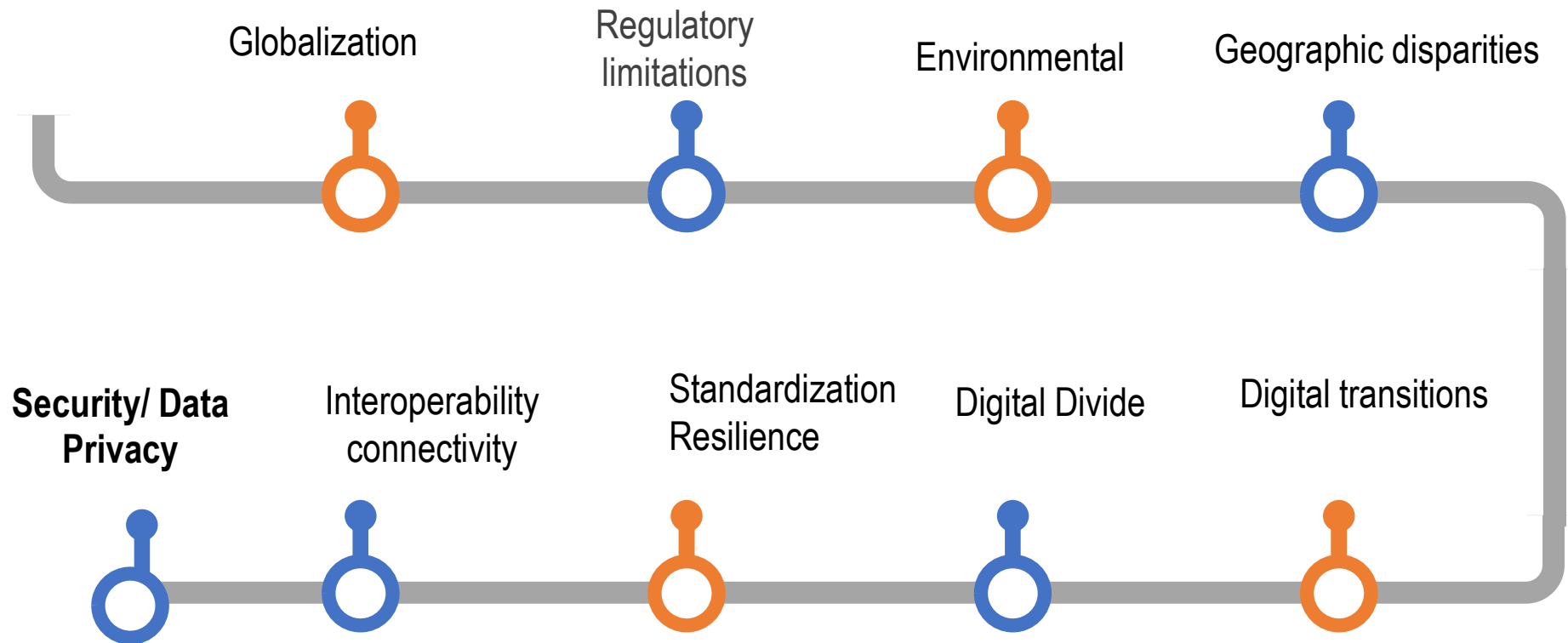
### Smart Sustainable Cities: Challenges

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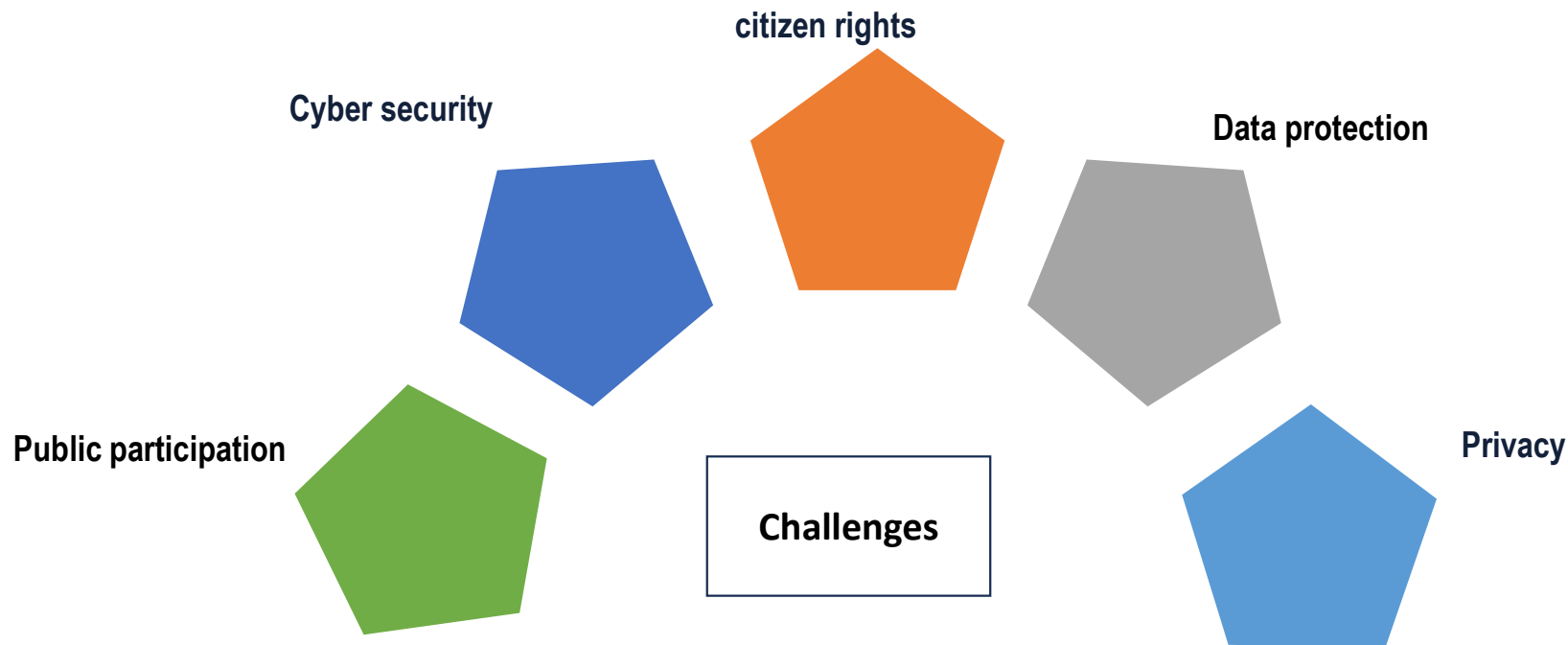


## Smart Sustainable Cities: Challenges



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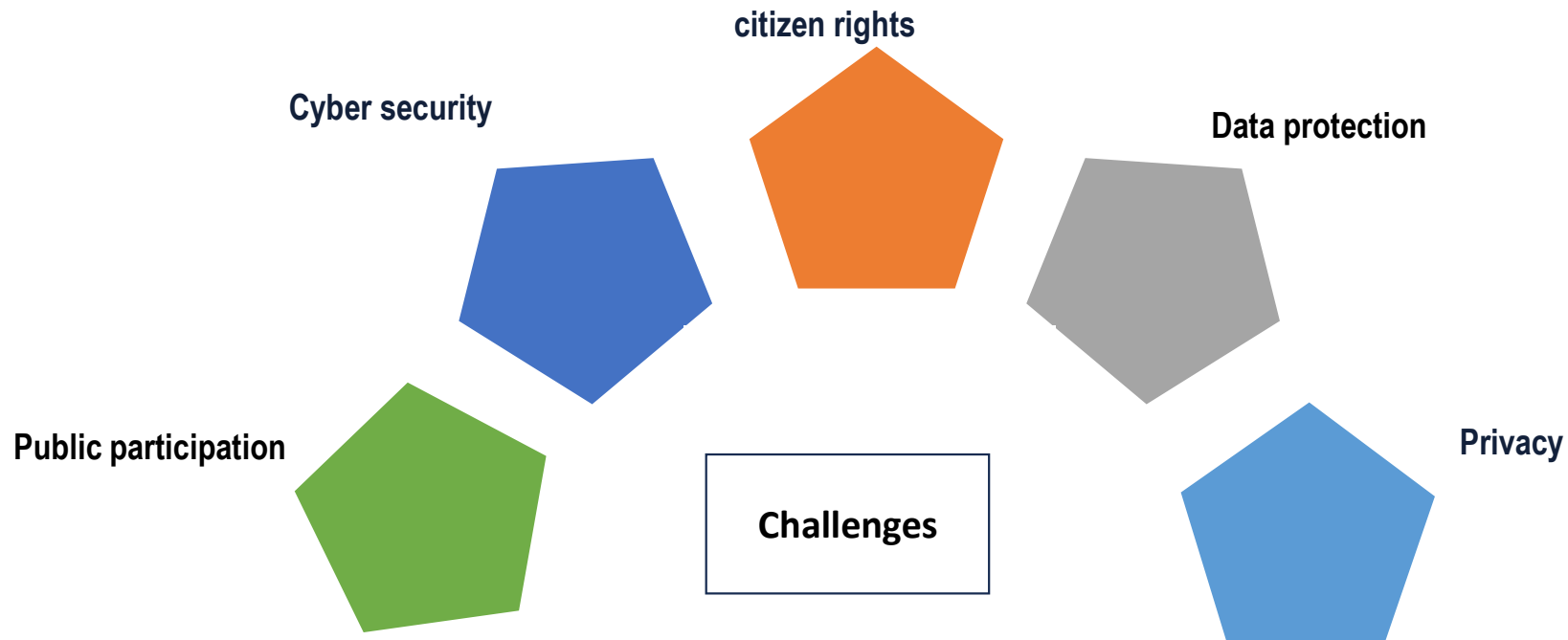
- **People - centered smart cities should aim towards**
  - the protection of citizens civil rights (the right to education,
  - the right to privacy,
  - confidentiality,
  - secrecy of communications (electronic communications and postal services),
  - enhance security, cybersecurity, mechanisms



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- Enable participatory governance,
- be conscious of the digital divide and provide mechanisms for digital inclusion, as well as
- citizen-centric smart and secure services.



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## Smart Cities: Security and Privacy

- In today's smart city era, **security and privacy are challenges** that everyone, especially those engaged in the development of smart cities and communications in general, must understand.
- In a smart city, it is critical to have - **a secure environment**.
- Governments have gradually begun to embrace smart city ideas in order to improve and thereby elevate their residents' living standards.
- The collecting, storage, processing and interchange of personal data raises several critical privacy and security issues that can compromise data privacy as well as trust in smart cities.
- As a result, **only a strong and up-to-date legal framework** will be able to cover the gap in protection left by the new communications services.

# Smart Cities: Security and Privacy

## Security

Security refers to protecting against unauthorized access to data, vulnerabilities to hardware, software data, and procedures

- Security is a line of defense against
  - natural disasters,
  - hostile attacks,
  - covert exploitation,
  - unintentional disruptions, and
  - the misuse of computer resources for purposes other than those intended.



# Smart Cities: Security and Privacy

## Privacy

The right to privacy: Fundamental principle → Universal Declaration of Human Rights (UDHR), International Covenant on Civil and Political Rights (ICCPR), European Convention on Human Rights (ECHR), American Convention on Human Rights, Constitutions of Various Countries

### Privacy concerns:

- the protection of the user's identity
- the right of an individual to be shielded from undue exposure of an individual's sensitive information.

*It is possible to have security without privacy but impossible to have privacy without security*

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**OPEN ISSUES ..**

- ✓ **Standardization and Technology**  
Existing and prospective privacy issues are hampered by the absence of new security standards and frameworks.
- ✓ **Legal Framework**  
Smart technologies encounter a number of legal issues in terms of applicable laws and legislations.
- ✓ **Emerging Technologies and Privacy on Devices**
  - Out of date software**
  - ✓ **Cybersecurity vulnerabilities**
    - Inadequate network security**
  - ✓ **Data privacy concerns**

Main data stages



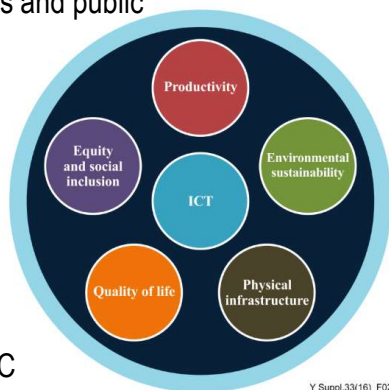
As the amount of data collected by smart cities increases, **data analysis** and **processing** is a challenge.

To protect individuals' identities in accordance with the current legal framework, data analysis must ensure anonymization and data confidentiality assurance.

## KPI's Smart Sustainable Cities

### KPI Categorization

- ✓ **ICT** (network and access, Services and information Platforms, information security and privacy)
- ✓ **environmental sustainability**;
- ✓ **productivity**; (Capital investment, Trade, Innovation, Knowledge economy)
- ✓ **quality of life**; (Education, Health, Safety and security in public places)
- ✓ **equity and social inclusion** (Openness and public participation, Governance)
- ✓ **physical infrastructure**



Dimensions of evaluation of SSC

Source: [b-ITU-T Y.4900]

Y Suppl.33(16)\_F02

## CHAIR's CONTRIBUTION TO UNESCO's PRIORITIES

### UNESCO's Medium-Term Strategy 2022-2029 (41 C/4)

- ✓ **Strategic Objective 1:**  
**Ensure quality equitable and inclusive education and promote lifelong learning opportunities for all**, in order, inter alia, to reduce inequalities and promote learning and **creative societies**, particularly in the digital era.  
**Outcome 1:**  
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- ✓ **Strategic Objective 2:**  
**Work towards sustainable societies and protecting the environment through the promotion of science, technology, innovation and the natural heritage**  
**Outcome 4:**  
Advance international cooperation in science, technology and innovation
- ✓ **Strategic Objective 4:**  
**Foster a technological environment in the service of humankind** through the development and dissemination of knowledge and skills and the development of ethical standards.  
**Outcome 8:**  
Foster knowledge sharing and skills development in the digital age



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*The UNESCO Chair will be a center of action in the fields of research and innovation, while close cooperation with **UNESCO**, the **Hellenic National Committee for UNESCO**, other UNESCO Chairs, and other national and international bodies for relevant programs and activities will contribute to the creation of a scientific center of excellence and innovation.*

*The purpose of the UNESCO Chair is to contribute educationally and consultatively, to the promotion of the development of sustainable urban creative cities, through the use of new technologies and services, innovative and climate-neutral ecosystems, to the strengthening of the creative industry and advanced digital skills, promoting the preservation and enhancement of cultural heritage, the peri-urban environment and the revitalization of the city's cultural life, as well as the protection of the cultural landscape and public awareness of smart/digital sustainable, resilient and inclusive cities and settlements, but also sustainable urban mobility.*

*The Chair is aligned with **the principles, procedures and functions** of the Unesco Chairs and Networks Programme and is intended to be a centre of action in the areas of **Education, Research and Innovation**.*

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*Through numerous activities and initiatives in the abovementioned fields and in parallel cooperation **with UNESCO**, and working closely with the Hellenic National Committee for UNESCO, the Lab's Chair aims to contribute towards the creation of an academic centre of excellence and innovation, which will have not only an educational and advisory character, but it will also be a pole of attraction for connecting with society.*

***The Chair will make an educational & advisory contribution** by promoting the development of sustainable urban creative cities, **using new technologies and services**, reinforcing innovative and climate-neutral ecosystems, by strengthening the creative industries and **advancing digital skills for all**, by promoting the preservation and **enhancement of cultural heritage**, of urban environments, and the **revitalization of the cultural life of the cities**, as well as the protection of the cultural landscape; and by **raising public awareness** for smart/digital cities, resilient and inclusive settlements as well as sustainable urban mobility.*

*For its operation, the planning and implementation of actions, a network of collaborators has been created that consist of postgraduate, doctoral and post-doctoral students, as well as members of the academic community who will join forces to achieve the maximum possible result.*

***More than 40 researchers** participate in the UNESCO Chair's Research Team.*





Thank you!



**Prof. Dimitrios D. Vergados**

**Dr. Eleni Varvarousi**



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